

# Patient Assessments of the Most Important Medical Decision During a Hospitalization

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**BACKGROUND:** How medical decisions are made in real-life situations is largely unexplored. We explored patients' perceptions of decision-making during a hospitalization and examined the conformity of the decision process with expert recommendations.

**OBJECTIVE:** To describe the conformity of the decision-making process with current expert opinion and examine the associations between various aspects of the decision-making process and a global assessment of the decision.

**METHODS:** Mail survey of patients discharged from a teaching hospital in Geneva, Switzerland. Patients identified the main medical decision during their stay, and rated the decision process (11-item "decision process score") and their satisfaction with the decision (five-item "decision satisfaction score"). Both scores were scaled between 0 (worst) and 100 (best).

**PARTICIPANTS:** The survey had 1467 respondents.

**MAIN RESULTS:** In total 862 (58.8%) of 1467 respondents reported having made a medical decision while in the hospital. The decision process score (mean 78.5, SD 21.5) and the decision satisfaction score (mean 86.5, SD 20.4) were moderately correlated ( $r=0.62$ ). Men, healthier patients, patients discharged from the department of surgery, and those who reported sharing the decision with their doctor gave the highest ratings on both scales. Five process variables were independently associated with high satisfaction with the decision: the doctor explained all possible treatments and examinations, the patient was aware of risks at the time of the decision, the doctor's explanations were easy to understand, the patient was involved in the decision as much as desired or more, and the patient was not pressured into the decision.

**CONCLUSIONS:** A majority of patients discharged from a general hospital were able to identify and rate a medical decision. Recommended features of the process of medical decision-making were associated with greater satisfaction with the decision.

**KEY WORDS:** shared decision-making; patient-centeredness; patient survey; quality of care.

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## INTRODUCTION

Patient involvement in medical decisions is a key aspect of patient-centred care.<sup>1–5</sup> Most patients are keen to participate in medical decisions,<sup>3–6</sup> and most doctors have a positive attitude toward patient involvement.<sup>7</sup> Patient involvement is justified by the ethical principle of autonomy, but may also lead to greater satisfaction with care<sup>8,9</sup> and to better clinical outcomes.<sup>10,11</sup>

Evidence about how medical decisions are reached in hospital care is limited. Observational studies of decision-making during medical visits<sup>12–16</sup> have not probed the perceptions of the patients. Others have explored patients' opinions about specific decisions in ambulatory care, including care for diabetes,<sup>9</sup> depression,<sup>10</sup> selected outpatient conditions,<sup>17</sup> hysterectomy,<sup>18</sup> hypertension,<sup>19</sup> surgical treatment for breast cancer,<sup>11,20</sup> or anti-thrombotic therapy.<sup>21</sup> What patients think about medical decision-making during a typical hospitalization has received limited attention.

In this study, we questioned patients recently discharged from an acute care hospital about the most important medical decision made during their stay. We sought to describe the conformity of the decision-making process with current expert opinion,<sup>1–5</sup> and to examine the associations between various aspects of the decision-making process and a global assessment of the decision.

## METHODS

This study was part of a regular patient opinion survey conducted at a teaching hospital in Geneva, Switzerland. As quality assessment projects that entail minimal risk to participants, these surveys<sup>22,23</sup> are exempted from full review by the research ethics committee. The hospital is public, and is affiliated with the Faculty of Medicine, University of Geneva. It includes separate facilities for acute care, rehabilitation, psychiatric care, geriatrics, and long-term care, totalling 2197 beds. Inpatient care is provided by senior doctors and residents who are salaried by the hospital; the patient's private physician is not directly involved.

## Sample, Data Collection

Participants were adult residents of Switzerland discharged from the hospital in March 2004. Due to a data extraction problem, the Department of Geriatrics was not included. The survey package—a cover letter, the self-administrated questionnaire, and a business reply envelope—was sent to patients' homes 4–8 weeks after discharge. Patients were invited to send the questionnaire back empty if they considered themselves

too sick or otherwise unable to fill it in, did not understand French sufficiently, or did not wish to participate. Non-respondents received a reminder postcard and two survey packages at 2 to 4 weeks intervals. We considered those who moved away, had died, or returned the questionnaire empty because they were too sick or did not speak French as ineligible.

## Questionnaire

The core of the questionnaire was the 50-item Picker patient experience survey.<sup>24</sup> Patients were also asked about their age, sex, nationality, level of education, and current health (two items from the Short Form 36 Health Survey: general health, and feeling downhearted and blue during the last 4 weeks).<sup>25,26</sup>

We added questions about the most important decision made in the hospital. The items were translated into French or written de novo by TP and ACB, based on a review of the literature<sup>12-21</sup> and existing instruments.<sup>27-33</sup> For consistency with the Picker questionnaire, we used a three-point response format whenever possible, with a fourth "not relevant" option where required. All items were pre-tested with 15 hospitalised patients. The pre-tests led us to include statements about timing (e.g., "Before the decision was made..." or "When the decision was made..."), since inpatients see their doctor regularly and several reported receiving relevant information too late. Other changes made during pre-tests are given below.

The initial question identified the type of decision, as starting a new medical treatment, choice between two medical treatments, having surgery, local vs. general anaesthesia,

Table 1. Process of Decision-Making in Hospital, as Reported by 812 Former Inpatients

Question	Answers	N (%)*	Decision evaluation score †
a) Before the decision was made, the doctor explained to me what were the different possibilities of treatment or examination	Yes, completely Yes, in part No There was only one possibility	483 (60.8) 113 (14.2) 81 (10.2) 117 (14.7)	92.0 73.6 62.6 90.3
b) Before the decision was made, the doctor explained to me what would happen if I did <b>not</b> have the treatment or examination.	Yes, in detail Yes, in general terms No	388 (50.9) 225 (29.5) 149 (19.6)	92.6 82.0 74.7
c) Before the decision was made, the doctor let me ask any questions I had about the treatment or examination	Yes, completely Yes, in part No I did not have any question	543 (68.8) 122 (15.5) 55 (7.0) 69 (8.7)	91.7 73.6 58.4 87.5
d) When the decision was made, I was aware of the benefits and expected outcomes of the chosen treatment or examination.	Yes, completely Yes, in part No I did not want to know about benefits and outcomes	551 (69.7) 167 (21.1) 63 (8.0) 10 (1.3)	92.4 74.3 60.7 91.0
e) When the decision was made, I was aware of the risks and drawbacks of the chosen treatment or examination.	Yes, completely Yes, in part No I did not want to know about risks and drawbacks	480 (61.5) 182 (23.3) 96 (12.3) 23 (2.9)	92.9 76.8 67.2 94.3
f) When the decision was made, I knew what would happen during the chosen treatment or examination.	Yes, completely Yes, in part No I did not want to know what would happen	475 (59.9) 218 (27.5) 89 (11.2) 11 (1.4)	93.0 78.3 68.4 90.1
g) The information that the doctor gave me was easy to understand	Yes, very easy to understand Yes, rather easy to understand No, it was difficult to understand	452 (57.2) 298 (37.7) 40 (5.1)	93.0 81.2 56.5
h) The doctor asked me if I understood all the information that he/she gave me.	Yes No	624 (80.0) 156 (20.0)	90.1 70.4
i) Before the decision was made, the doctor gave me enough time to think about it.	Yes, enough time Yes, but time was too short No There wasn't any time (emergency)	456 (59.8) 66 (8.7) 102 (13.4) 139 (18.2)	89.9 74.9 73.2 90.9
j) The doctor gave me an opportunity to participate in the decision.	More than I wanted As much as I wanted Less than I wanted I did not want to participate	127 (17.8) 437 (61.4) 88 (12.4) 60 (8.4)	94.2 88.8 60.2 87.4
k) The doctor pressured me to make a decision that I was unconvinced about	Yes, pressured me a lot Yes, pressured me a little No	42 (5.6) 81 (10.8) 625 (83.6)	75.2 71.6 89.5

\* Percentages given on valid answers; on average 37 missing answers per question (4.6%)

† Based on variables in Table 2

peridural anaesthesia for childbirth, specialized investigation, other type of decision. We developed this closed-format list after pre-tests revealed that an open-ended question yielded inconsistent information.

Subsequent questions probed the decision-making process and global satisfaction with the decision. The decision process was explored through 11 items (Table 1), adapted from the COMRADE scale (items a, c, d, e, g, j),<sup>28</sup> the Decision Conflict Scale (items a, d, e, k),<sup>29</sup> and the OPTION scale (items a–f, h).<sup>30</sup> We created a new item about having had enough time to think about the decision (i), since sufficient time is an important requirement for informed consent.<sup>34</sup> During pre-tests we added the response option about lack of time in emergency situations. The patient's perception of who made the decision (doctor alone, mostly doctor, shared, mostly patient, patient alone) was adapted from Degner.<sup>31,32</sup> The global satisfaction with the decision was based on five items (Table 2), adapted from the COMRADE scale (items m, n),<sup>28</sup> the decision regret scale (items n, o, p),<sup>33</sup> and the Satisfaction with Decision Scale (item n).<sup>34</sup> We created one new item (item l: satisfaction with the doctor's role in the decision), because many of the process-related items address the role of the doctor; during pre-tests we added the explanation in parentheses about what we meant by the doctor's role. The pre-test also led us to drop an item about the decision being consistent with the patient's values, as several participants did not understand what we meant by this.

## Statistical Analysis

First we analysed the proportion of respondents who reported on a decision made in the hospital, i.e., those who identified a specific type of decision or who answered more than half of the questions related to decision-making. The prevalence of patient-reported decision-making was compared across subgroups.

Second, we examined the frequency distributions of the items related to decision-making. We limited this analysis to respondents who answered a least half of these items. To derive a global process-related scale scaled between 0 (worst)

and 100 (best), we recoded each item response as desirable (scored as 100), intermediate (50), undesirable (0), or item not relevant or not applicable (100). For instance, in response to the item "When the decision was made, I knew what would happen during the chosen treatment or examination", "Yes, completely" was assigned 100, "Yes, in part" was assigned 50, "No" was assigned 0, and "I did not want to know what would happen" was assigned 100 as well, since this response reflects the patient's preference and not a deficiency in the information process. We verified by factor analysis that the scale was unidimensional, and computed a *decision process score* as the mean value between 0 and 100, if at least half of the items were answered. This approach to computing summary scores is used by many scaling algorithms, including the Short Form 36 Health Survey.<sup>26</sup> We proceeded similarly for the five global evaluation items, and computed a *decision satisfaction score*. We obtained Cronbach alpha coefficients for both scales.

To examine the validity of the questionnaire items, we compared mean decision-process scores across responses to satisfaction items, and mean decision-satisfaction scores across responses to process items. We expected that the process and outcome of the decision would be associated.

To identify the most important process-related items, we used analysis of variance, with the decision satisfaction score as the dependent variable, and the process items as factors.

We examined the two summary scores across patient subgroups, using analysis of variance. Post hoc comparisons were adjusted with the Scheffé method. Finally, we examined associations between the two summary scores and the global rating of the hospital stay (between excellent and poor) in ordinal logistic regression. P values <0.05 were considered statistically significant.

## RESULTS

Of 2396 patients contacted by mail, 233 were found to be ineligible (22 had died, 86 had an unknown address, 44 did

**Table 2. Global Satisfaction with Decision-Making in Hospital, and Associations with the Decision Process Score, Reported by 812 Former Inpatients**

Question	Answers	N (%)*	Mean decision process score †
l) Globally, I am satisfied with the doctor's role in this decision (his/her explanations, listening, availability)	Yes, completely	630 (79.2)	85.6
	Yes, in part	131 (16.5)	59.2
	No	34 (4.3)	28.7
m) I am satisfied with the manner in which the decision was made	Yes, completely	594 (75.3)	85.5
	Yes, in part	156 (19.7)	64.2
	No	39 (4.9)	37.1
n) All things considered, I think that the decision that was made was the right one	Yes, certainly	587 (74.2)	83.7
	Yes, probably	174 (22.0)	66.8
	No	30 (3.8)	48.6
o) All things considered, I regret the decision that was made	Yes, completely	29 (3.8)	62.6
	Yes, in part	47 (6.2)	55.5
	No	680 (89.9)	81.0
p) If I were to do this again, I would make the same decision	Yes, certainly	520 (69.9)	83.7
	Yes, probably	177 (23.8)	70.9
	No	47 (6.3)	56.1

\* Percentages given on valid answers; on average 35 missing answers per question (4.3%)

\*\* For computation of decision evaluation score; established a priori

† Based on variables in Table 1

not speak French, 81 were too sick to respond). Of 2163 eligible respondents, 1467 (67.8%) returned the questionnaire.

## Frequency of Decisions

Seven hundred and seventy-two (52.6%) respondents checked one type of medical decision made during their hospital stay, 447 (30.5%) checked that "no important medical decision was made in hospital," and 248 (16.9%) left the answer blank. The types of decision were: starting a new medical treatment (158), choice between two medical treatments (38), having surgery (205), local vs. general anaesthesia (140), peridural anaesthesia for childbirth (74), specialized investigation (104), other type of decision (53). Among respondents who did not identify a specific decision, 90 answered nine or more of the 17 decision-related questions, and were therefore included among those who reported on a decision. Thus 862 (772 plus 90, 58.8%) of 1467 respondents gave a clear indication of having made a decision in the hospital.

Reports of decisions were more frequent among younger patients, the more educated, those born outside Switzerland, the more depressed patients, and those discharged from the departments of gynaecology-obstetrics and psychiatry (Table 2).

## Decision-making Process

Among 862 patients who identified a decision, 48 answered fewer than 9 of the 17 questions on decision-making. These incomplete records were excluded, leaving 814 observations for further analysis.

For each of the 11 questions about the decision-making process, a majority of patients selected the most favourable answer (Table 1). The least favourable results were obtained for information on what would happen if the patient refused the intervention, and for the information being easy to understand.

The decision process score based on the 11 process-related items had a Cronbach alpha coefficient of 0.82. The mean was 78.5 (standard deviation 21.5), and 141 (17.5%) respondents had a score of 100.

## Satisfaction with the Decision

Most patients were completely satisfied with the doctor's role in the decision and with the decision globally (Table 3). The five satisfaction items were also combined into a summary decision satisfaction score, scaled between 0 and 100. The Cronbach alpha coefficient was 0.81. The mean score was 86.5 (standard deviation 20.4), and 436 (54.6%) respondents had the maximum score of 100. Each of the five satisfaction items was significantly associated with the mean decision process score. The Spearman correlation coefficient between the two summary scores was 0.62.

## Process Items as Predictors of Decision Satisfaction

Each of the 11 process items was significantly associated with the mean decision satisfaction score (Table 1), but in multivariate analysis, five items remained significant (Table 4): the doctor explained all possible options, the patient was aware of

**Table 3. Characteristics of Survey Participants, Proportions Who Reported a Medical Decision During Their Hospital Stay, and Mean Decision Process Scores and Decision Satisfaction Scores**

	Total N (%)	Reported on decision		Decision process score		Decision satisfaction score	
		Percent	P	Mean	P	Mean	P
Sex:			0.49		0.014		0.031
Women	811 (57.3)	58.0		76.7		85.2	
Men	614 (42.7)	59.8		80.5		88.3	
Age:			0.003		0.064		0.007
18-64 years	950 (64.8)	61.5		77.4		84.9	
65-84 years	464 (31.7)	55.2		81.1		89.9	
85-97 years	51 (3.5)	41.2		74.4		86.6	
Country of birth:			0.033		0.36		0.58
Switzerland	768 (54.5)	56.4		77.6		86.8	
Other	642 (45.5)	62.0		79.0		86.0	
Education:			0.062		0.20		0.024
Up to high school	970 (70.4)	57.3		78.8		87.5	
Higher education	408 (29.6)	62.7		76.7		83.9	
Health status:			0.47		0.002		<0.001
Excellent or very good	419 (30.1)	60.4		82.1		90.7	
Good, fair or poor	974 (69.9)	58.3		76.9		84.8	
Felt depressed in past month:							
Rarely or never	653 (47.0)	55.9		82.2		89.9	
Some, most or all of the time	737 (53.0)	62.0	0.021	75.4	<0.001	83.5	<0.001
Hospital department:			0.004		<0.001*		<0.001**
Medicine	322 (22.2)	55.8		76.0		85.5	
Surgery	534 (36.4)	59.7		82.2		90.7	
Neurosciences	243 (16.6)	50.6		78.3		85.8	
Psychiatry	94 (6.4)	62.8		66.9		75.5	
Gynaecology-obstetrics	269 (18.3)	66.5		77.7		84.3	

\* Scores for psychiatry significantly lower than those of surgery, neurosciences and gynaecology

\*\* Scores for surgery significantly higher than those of medicine, psychiatry, and gynaecology; scores for neurosciences significantly higher than those of psychiatry

Table 4. Multivariate Model Relating Process Variables and the Decision Satisfaction Score

Process variable	Response	Difference in decision satisfaction score		
		Adjusted difference	95% confidence interval	P value
Doctor explained all possible treatments and examinations	Yes, completely	12.6	7.8 to 17.5	<0.001
	Yes, in part	4.5	−0.7 to 9.5	
	No	Reference		
	Only one possibility	12.9	7.4 to 18.4	
Patient was aware of risks	Yes, completely	10.7	6.2 to 15.2	<0.001
	Yes, in part	4.0	−0.6 to 8.5	
	No	Reference		
	Did not want to know	16.1	8.1 to 24.0	
Doctor's explanations were easy to understand	Very easy	20.1	14.1 to 26.2	<0.001
	Rather easy	14.9	8.9 to 20.8	
	No, difficult	Reference		
Patient was involved in decision	More than wanted	14.6	9.8 to 19.5	<0.001
	As much as wanted	12.1	8.0 to 16.1	
	Less than wanted	Reference		
	Did not want to participate	14.1	8.5 to 19.7	
Patient was pressured into decision	Yes, a lot	Reference		<0.001
	Yes, a little	0.7	−5.7 to 7.1	
	No	12.2	6.6 to 17.7	

risks, the doctor's explanations were easy to understand, the patient was involved in the decision as much as desired or more, and the patient was not pressured into the decision.

## Shared Decision-Making

The patients' perception of who made the decision was as follows: the doctor told the patient what should be done, without asking her/his opinion (87, 11.4%), the doctor enquired about the patient's opinion, but ultimately made the decision (154, 20.3%), the doctor and the patient decided together (322, 42.4%), the patient made the decision, having obtained the doctor's opinion (175, 23.0%), and the patient told the doctor what she/he wanted, without asking the doctor's opinion (22, 2.9%). The pattern of the summary scores was concave, with the highest scores occurring when the decision was shared between patient and doctor (Fig. 1).

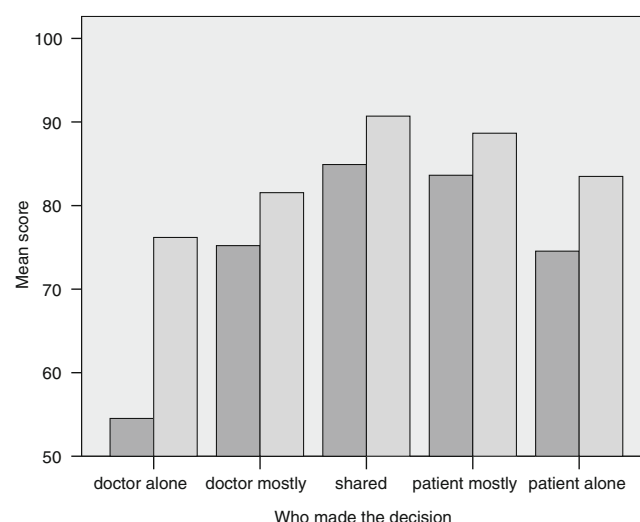
## Subgroup Comparisons

Decision process scores were significantly higher among men, older patients, those in better health, those who were not depressed, and in patients discharged from the department of surgery (Table 3). These results were essentially unchanged in multivariate analysis, but the differences by sex and age became non-significant (not shown). The univariate results were similar for the decision satisfaction score, with the added significant difference between the less and the more educated. Here too multivariate analysis confirmed these results, and the sex difference became non-significant (not shown).

## Associations with Global Satisfaction

Both scores were associated with the global rating of hospital care between "poor" and "excellent." In ordinal logistic regression

analysis, we just observed the association, in an ordinal logistic regression analysis a difference of one standard deviation of the process score was associated with an odds ratio of 2.4 (95% confidence interval 2.1 – 2.8) of a higher global rating, and one standard deviation of the decision satisfaction score with an odds ratio of 2.6 (95% confidence interval 2.2 – 3.0). Both associations remained statistically significant after adjustment for one another.



**Figure 1.** Mean decision process (dark gray) and decision satisfaction (light gray) scores, across the patient's perception of who made the decision. Differences between groups globally significant for both scores (ANOVA:  $p$ -value <0.001). Post hoc comparisons for decision process score: mean of "doctor alone" significantly lower than all others, and "mostly doctor" significantly lower than "mostly patient" and "patient alone". For the decision satisfaction score, means of "doctor alone" and "mostly doctor" significantly lower than "mostly patient" and "patient alone".



## DISCUSSION

More than half of the patients discharged from hospital identified a medical decision that was made during the hospital stay. According to patient reports, the decision-making process was globally in conformity with current expert opinions.<sup>1-5,14,30</sup> Most respondents gave positive ratings to the decision that was reached; only few conveyed negative feelings through their responses. A shared decision-making approach led to the highest scores for both the process and decision evaluation of the decision-making. Both scores were also predictive of a more favourable assessment of the hospital stay.

According to our observations, a decision that the patient will be satisfied with requires explanations that are easy to understand, covering all options available to the patient as well as risks. Furthermore, a good decision requires patient involvement to the level desired, and absence of pressure into the decision. These empirical findings provide a solid support to experts' opinions about the ingredients of appropriate decision-making. The association between process and outcome suggests that satisfaction with the decision is not only a consequence of low expectations (but as we did not measure expectations, we cannot assess the impact of this variable directly).

Only one finding was contrary to experts' opinions: involving the patient *more* than he or she wanted had a positive effect on the global satisfaction. Possibly, some patients interpreted "more than I wanted" to mean "exceeding my initial expectations", rather than "too much". If so, a more explicit wording of this item may be warranted. Alternatively, some patients do not know in advance how much involvement they would want, and realize in retrospect that greater involvement was a good thing. The finding that being involved "more than preferred" was associated with higher satisfaction than being involved "less than preferred" has been observed previously.<sup>35</sup>

Our study also confirms that the patient's perception of shared decision-making is associated with the highest ratings of the decision. That process scores should be high for shared decision-making is in part tautological, since the process score gives high marks to the exchange of information and to the active involvement of the patient. However, the same cannot be said of the decision satisfaction score, which is not predicated on any type of process. Our results support shared decision-making as the preferable model for most patients.<sup>36,37</sup>

Other findings deserve comment. The prevalence of recalled decision-making appears to be low at 58.8%. Studies conducted in ambulatory settings typically identified several decisions made during a single visit.<sup>13,14,16</sup> It is likely that even more decisions are made during a hospital stay. Some patients may be unaware that decisions are made repeatedly, believing instead that their care is a sequence of pre-determined steps. Unless the doctor brings the decision to the patient's attention, the patient may never realise that several courses of action were possible. That older patients, who are more likely to prefer a doctor-centred decision-making style, were less likely to report a medical decision is consistent with this hypothesis. However, incomplete or selective recall remains a possibility.

Patient reports of decision-making process were more favourable than we anticipated based on previous descriptive studies. For each of the 11 process-related items, more than half of the respondents gave the most desirable answer, and one out of six rated all of these 11 elements at the highest level. Several caveats are in order. Firstly, patients who were not

involved in decisions may have skipped this section of the questionnaire. Secondly, given that for most patients several decisions were made in the hospital, respondents may have focused on the decision for which the process was the most explicit, and which therefore conformed best with current standards. Thirdly, patient opinion surveys tend to produce globally positive ratings. Finally, the moderate response rate raises the possibility that patients who were more satisfied with decision-making were also more likely to participate. Thus both selection bias and information bias may have contributed to the globally favourable findings.

This study was based on an unselected large sample of patients discharged from a general hospital. However, only one hospital was involved, and it remains unclear whether the results that we observed are applicable to other hospitals, particularly to hospitals in other cultural contexts, where both the doctors' approaches to medical decision-making and the patients' expectations in this area may differ.

Another limitation is the lack of a precise description of the decision discussed by the respondent. This was tried in pre-tests, but the responses that we obtained were too heterogeneous and the idea was abandoned. This limits the interpretability of the results. Furthermore, we only collected patients' perceptions, with no corroborating evidence from the doctor. Finally, all limitations of self-report, such as imperfect memory and social desirability bias, apply to our results as well.

While not a specific goal of this study, a useful by-product is the development of two scales that allow the patient to evaluate the process and the outcome of medical decision-making. Both scales had good internal consistency. Their validity is supported by the associations between process items and decision satisfaction scores, and vice versa (Tables 1 and 2). However, a more extensive validation of these scales is advisable. In particular, measurement of the outcome of decision-making is challenging, as satisfaction with the decision may be high when the patient's expectations are low, and may decrease when more extensive information about available options causes discomfort or decisional conflict.

In conclusion, our results indicate that decision-making in a general hospital is globally satisfactory, though several areas for improvement exist, and provide an empirical confirmation of expert opinions about the desirable features of medical decision-making.

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**Conflict of Interest:** None disclosed.

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